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ABSTRACT

Rates of adolescent childbearing in the United States are two to ten times higher than in comparable industrialized democracies. Some programs and service options that show promise for reducing the incidence of adolescent pregnancy are identified in this paper. It begins by outlining 11 principles derived from available research and from program experience so as to provide a starting point for designing the next set of interventions. The principles address topics that range from the focus of intervention efforts to the targets of interventions. These include ideas such as (1) base intervention programs on the findings of basic research and previous program evaluation studies; (2) combine positive and negative sanctions to affect behavior; (3) when working with at-risk youth, interventions need to start before puberty; and (4) to create effective programs, work with families and communities to develop and implement programs. Once these principles are outlined the focus turns to more concrete ideas for interventions that build on the available knowledge base. These suggestions are broken down by early childhood interventions, early adolescent interventions, high school youth, parent empowerment, approaches at the community level, and sex education and interpersonal skills. It is argued that available research and existing evaluations can provide guidance for future initiatives. (RJM)

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Next Steps and Best Bets:

Approaches to Preventing Adolescent Childbearing

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Next Steps and Best Bets:
Approaches to Preventing Adolescent Childbearing

INTRODUCTION

Rates of adolescent childbearing in the United States are two to ten times higher than in comparable industrialized democracies. Moreover despite several decades of effort to prevent adolescent pregnancy, little progress has been made. The teen birth rate among school-age adolescents 15-17 was essentially the same in 1993 as it was in 1970 -- 39 births per 1,000 females aged 15-17. What can policy makers, program providers, and families do to reduce the incidence of adolescent pregnancy in the US?

Although many families do not need assistance or information from organized programs, many other families want or need information and/or services that would help their children to postpone sex, pregnancy, and parenthood. The focus of this paper is to identify program and service options that show promise for reducing the incidence of adolescent pregnancy. Unfortunately, there is a dearth of programs that have been documented to have substantial and lasting effects on adolescent sex, pregnancy or parenthood. Thus, we cannot simply pull down from the shelf a sure fire service program or curricula demonstrated to have large, positive sustained impacts. Rather, there is a need to pause before implementing a new generation of programs, to consider what has been learned and the most promising directions for future interventions.

Much has been learned over the past several decades that can direct and inform the next generation of interventions. In this paper, we outline a set of 11 principles derived from available research and from program experience that provide a starting point for designing the next set of interventions. These principles address topics that range from the focus of intervention efforts to the targets of interventions, and from the characteristics of programs to the need for evaluation.

PRINCIPLES

1 - Base intervention programs on the findings of basic research and previous program evaluation studies.
2 - Combine positive and negative sanctions to affect behavior.
3 - For at-risk youth from disadvantaged or dysfunctional families, interventions need to start before puberty.
4 - To create effective programs and avoid destructive controversy, work with families and communities to develop and implement programs.

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5 - Recognize that varied groups need varied degrees of intervention, ranging from no intervention to comprehensive, long-term programs.

6 - Recognize cultural diversity in the design and implementation of programs.

7 - Recognize that age differences affect both the needs of children and adolescents and the characteristics of an effective program.

8 - Recognize that for many teens sexual risk-taking is one of several related forms of risk-taking, such as substance use and delinquency.

9 - Build programs that recognize the role that non-voluntary sex plays in the early initiation of sexual activity, pregnancy and parenthood.

10 - Involve males and recognize that many male partners of adolescent females are not themselves teenagers.

11 - Conduct process evaluations for all organized programs and, where warranted, conduct rigorous impact evaluations.

In the following pages, we elaborate upon each of the eleven points. In a subsequent section, we outline several specific and distinct program intervention and evaluation strategies that might be implemented as next steps.

1. Base intervention programs on the findings of basic research and previous program evaluation studies.

Unfortunately, it is not possible to identify very many adolescent pregnancy prevention programs that have actually documented substantial success in preventing pregnancy or parenthood. Most of the interventions that have been rigorously evaluated have been found to have only small or no effects. A recent pair of reports suggests an explanation for this lack of progress.[1] The first report reviews hundreds of research studies and identifies four broad factors that consistently predict early parenthood: poverty, early school failure, early behavior problems, and family problems and dysfunction. The second report describes a variety of intervention programs, and finds that only a minority of these programs address these four basic risk factors. Even among the programs that focus on these underlying factors, few programs start early or take on several risk factors at the same time. Rather, programs tend to focus narrowly on a single aspect of prevention; efforts tend to be brief and superficial; and interventions are provided too late to have major impacts among at-risk populations. Thus, several weeks of sex education in high school would be a typical intervention: too late, too superficial and too narrow.

Moore, Kristin A., Brent C. Miller, Dana Glei and Donna Ruane Morrison. 1995. "Adolescent Sex, Contraception, and Childbearing: A Review of Recent Research." Washington, DC: Child Trends, Inc.

Moore, Kristin A., Barbara W. Sugland, Connie Blumenthal, Dana Glei and Nancy Snyder. "Adolescent Pregnancy Prevention Programs: Interventions and Evaluations" Washington, DC: Child Trends, Inc.

The juxtaposition across the two reviews strongly suggests that one reason few interventions have been successful is that they have overlooked the underlying factors that predict early childbearing in the contemporary United States -- poverty, early school failure, early behavior problems, and family problems (Moore, Miller, Glei and Morrison, 1995). Even when strong comprehensive programs address the factors that predict teenage childbearing, they are rarely rigorously evaluated, so it is not possible at this point in time to demonstrate their effectiveness.

Programs are needed that address the underlying factors that predict teenage childbearing.

Poverty. Economic disadvantage is strongly linked to teenage parenthood. Among United States teens, 38 percent are poor or low income. However, 85 percent of all nonmarital teen births occur to poor or near-poor teens (that is, teens whose families have incomes below 200 percent of poverty) (Alan Guttmacher Institute, 1994). Studies have linked both family-level disadvantages and neighborhood-level disadvantages with a higher risk of early childbearing. For example, teens from low income families and families that receive welfare are more likely to have a birth. On the other hand, better employment opportunities have been found associated with a lower probability of a teen birth.

School Failure. Students who are behind grade, who have low levels of academic achievement, who obtain poor grades or have low achievement test scores, and adolescents who have dropped out of school are two to five times more likely to have a child by the time they would complete high school.

Behavior Problems. Similarly, teens who have school behavior problems, who smoke, drink or use drugs, and who engage in delinquent activities are all much more likely to become teen parents.

Family Problems. Varied aspects of family functioning have been linked to the risk of pregnancy among adolescents. For example, teens with supportive family relationships, who attend church frequently, who live with both of their parents, and who have better educated parents are less likely to initiate sex at a young age. On the other hand, youth from families which do not monitor their children, which cannot or do not communicate with them, which do not provide strong values and goals for the future, and which fail to help teens deal with media and peer influences are much more likely to become parents as adolescents. Finally, youth who are subjected to non-voluntary sex are at a much higher risk of adolescent parenthood.

Poverty, family dysfunction, early behavior problems and difficulty in school represent very substantial problems, and any effective intervention would have to be long term and profound. Consequently, few program designers have been willing to initiate a comprehensive intervention among pre-schoolers or children in elementary school in the hope that pregnancy rates will be lower a decade or more later. However, such programs have been initiated for other purposes, e.g., Head Start programs and Head Start-to-school transition programs; two

generation programs such as the Comprehensive Child Development Projects; housing and neighborhood development programs, such as Moving to Opportunity; and a variety of mentoring and tutoring programs. Hence, rather than starting from scratch, program designers might augment or extend evaluations of such programs to examine outcomes during adolescence. Thus, if a tutoring and mentoring program is planned for grades two through four, ways to extend the program through junior high or even high school might be planned. If it is not possible to extend program services, at the very least, the long-term impacts of a program offered in the early elementary grades might be tracked.

If resources were available, the ideal intervention effort for a high-risk disadvantaged population would be a long-term program that was initiated among pre-school children to help parents become economically independent and to leave poverty; to help parents learn parenting skills if needed and to help parents become involved in the process of their child's education; to help children master the essential tasks of early elementary school such as reading and basic arithmetic; and to help children learn behavior patterns that are compatible with school success and that reduce the risk of delinquency in the later elementary grades and junior high school. Children would have to be randomly assigned and followed for more than a decade to produce the kind of impact results that would demonstrate whether this approach significantly reduces rates of adolescent parenthood. Such an endeavor would be quite expensive; but, based on the accumulated research, this is the kind of approach that needs to be tested.

2 - Combine positive and negative sanctions to affect behavior.

Results of numerous evaluation studies indicate that, when programs are not mandatory, only a small number of the persons who would benefit from the program participate actively and consistently over a sustained period of time (Gueron and Pauly, 1994; Maynard, 1995). Moreover, even among volunteers for a program, those adolescents selected for a program do not participate consistently or participate in all program offerings (Quint et al., 1994). Hence, there is real reason to apply strong negative sanctions to bring eligible participants to actually participate (Maynard, 1995). On the other hand, a large body of scientific research indicates that positive reinforcement is more effective in producing internalized behavior than is punishment (Berger, 1983; Amato, 1989).

These separate bodies of research and program experience indicate that effective programs should combine negative sanctions with positive sanctions, much as an effective family combines rewards and punishments in the socialization of its children.

Particularly among children and adolescents from disadvantaged backgrounds, substantial impediments exist that undermine program participation (Goodson et al, 1991). There may be distrust for program providers, who may be from a different cultural group or social class. There may be access problems, such as transportation difficulties or financial constraints. Family and

peers may not be supportive of participation, and may even actively discourage participation. For all of these reasons, participation might be encouraged by a combination of "carrots and sticks."

However, negative sanctions may be inappropriate for young children and for families who are not (yet) experiencing clear difficulty. Presumably, this is one reason program providers seek to place programs in schools, where all children will inevitably be exposed to program offerings. However, if the services offered are not appropriate to the school curriculum, or funds are not available to provide services to all children, other ways of increasing participation need to be developed. Requiring participation of all eligible children may be warranted in some instances, e.g., if a school principal refers children who are demonstrating serious behavior, learning or emotional problems. Alternatively, strong positive reinforcement (rewards and inducements) may be necessary to cajole participation; such inducements may need to be combined with personal follow-up and services that make participation feasible, such as free transportation and snacks.

3 - For at-risk youth from disadvantaged or dysfunctional families, interventions need to start before puberty.

Research studies regularly find that negative behavior patterns among adolescents have their origins in childhood, often early childhood (National Commission on Children, 1991; Hahn, 1995). Yet, programs to prevent adolescent pregnancy often begin in high school, when established patterns are difficult to change. Indeed, many disadvantaged and otherwise at-risk teens have initiated sex, developed erratic patterns of contraceptive use, and experienced pregnancy before reaching high school (Moore, Miller et al., 1995).

We propose the following axiom: the greater the risk of adolescent pregnancy, the earlier interventions need to be implemented. For college-bound teens from stable, supportive families, sex education in the sophomore year of high school may be quite sufficient, as these youth are unlikely to have already initiated sex and are unlikely to risk a bright future by becoming a teen parent. For children from families where parents themselves had difficulty in school or who have had problems with crime or delinquency, and who are experiencing economic hardship and disorganization, interventions cannot be delayed. For children from at-risk backgrounds, high quality pre-school interventions with follow-through into elementary school may be particularly effective.

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4 - To create effective programs and avoid destructive controversy, work with families and communities to develop and implement programs.

Providers often find that programs to prevent adolescent pregnancy, especially those that deal directly with sex, such as sex education and contraceptive services, face opposition from special interest groups that may be very small but vocal, or large and well-organized. Less recognized are the concerns of the larger body of parents and community members who are simultaneously supportive but nervous. Being generally unorganized, such ambivalent groups are often simply overlooked. In either case, communication and discussion with stakeholders prior to the initiation of a program can help to diffuse such opposition and turn it into constructive energy.

There is no simple recipe that will be helpful in every community; but certain steps are necessary in most instances. First, program planners need to identify the persons or groups who should be involved. Adolescents to be served should be a part of the planning process, as should potential funders, parents, and employees in service organizations. Community members representing religious groups, the press, and the business community might also be invited to participate. Second, having identified representatives of concerned constituencies, planners need to involve them in defining the problem. Most communities will define early sexual initiation as problematic, while others will view the problem as early pregnancy. A few communities will define the problem in terms of preventing births to teens or preventing nonmarital births; but preventing pregnancy is more likely to be achieve consensus. Third, having identified the problem, an approach for addressing the problem needs to be agreed upon. Again, some approaches will be less controversial than others. For example, providing mentors and tutors to at-risk adolescents will be controversial in fewer communities than providing contraceptive and abortion services to adolescents. Controversial programs particularly require community support. Next, target populations need to be defined. Are parents the focus? Both parents and children? Males as well as females? What ages will be served?

Going through this process with a broad representation of community members should not only reduce opposition, it should improve the quality of the program that is designed. It may also generate some of the long-term financial and social support that will help sustain the program over time.

5 - Recognize that varied groups need varied degrees of intervention, ranging from no intervention to comprehensive, long-term programs.

There are several reasons to concentrate resources on those youth most at risk. One is the shortage of available resources. Comprehensive programs that are long-term, that provide the incentives necessary to generate sustained participation, and that provide follow-up for youth who drop by the wayside are expensive. Sufficient financial resources are simply not available to provide comprehensive long-term services to all or even to very many young persons.

However, if some youth only need training to resist peer pressure and media influences, there is no need to provide more expensive programs to such youth.

A second reason to concentrate resources on those youth most at risk is that comprehensive programs can generate political and social opposition. Sweeping statements implying that all youth need to be socialized by paid professionals in organized programs may infuriate some parents and non-parents who feel strongly that families need to retain or regain control of the socialization of their own children. We suspect that one of the common sources of opposition to programs to prevent adolescent pregnancy is parents with strongly-held values about childrearing who do not welcome the intrusion of outside forces. While such persons are not inevitably effective parents, we suspect that by and large the children of intensely involved parents are not in need of comprehensive program services. There is no point to inviting unnecessary controversy. Rather, advocates and program planners should be temperate in their statements and focussed in their interventions, providing minimal levels of intervention where warranted and providing comprehensive intervention programs only when the need is great, e.g., for children experiencing multiple risks, such as school failure, behavior problems, and family dysfunction.

6 - Recognize cultural diversity in the design and implementation of programs.

Addressing issues of cultural diversity or cultural competence implies recognizing differences in values, roles, and attitudes about sexuality, contraception and childbearing as they vary across different social and ethnic sub-groups. Incorporating recognition of these differences into programs and curricula may help attract and involve potential participants, secure community support, and increase the effectiveness of programs (Office of Technology Assessment, 1991). Unfortunately, at present, the admonition to be sensitive to cultural differences represents a recommendation that is not backed up with much research. Remarkably little work has been done examining the potentially profound implications of a commitment to showing recognition and respect to the many and varied cultural groups in the United States.

Some Afro-centric programs have evolved, but evaluations assessing the effectiveness of this approach or of variants of this approach have not been rigorously evaluated (Moore, Sugland et al., 1995). Similarly, some programs addressing Hispanic sub-groups have been identified; but rigorous evaluations have not been found. Often such approaches are operating "on a shoe string" and do not even have a written curriculum or a clearly specified model that could be evaluated or even shared with another interested group. Approaches directed at Asians and Native Americans do not appear in the literature. Clearly, considerably more work is needed to put substance into this principle.

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7 - Recognize that age differences affect both the needs of children and adolescents and the characteristics of an effective program.

The years of adolescence encompass a time of enormous development and change (Feldman and Elliot, 1990). Program planners often speak of "teen pregnancy," without specifying whether they are referring to young adolescents, high school students, or youth in their late teens. This casualness undoubtedly is sometimes another factor sparking opposition to programs, as speakers and listeners have different images of the target population. This lack of precision probably also undermines the effectiveness of programs as well, if the substance and delivery are not developmentally appropriate for the target population. For example, no responsible program would support and encourage middle school students to engage in sexual activity; early adolescents aged 12, 13, and 14 are quite universally agreed to be too young to initiate sex. However, by the late teens, most adults accept (even if they do not approve) the need for contraceptive services for teens who have become sexually active. Numerous other age-related differences distinguish the content and context appropriate for younger and older adolescents; but the implications of such differences for programs to prevent adolescent pregnancy have not been fully considered.

Research has begun to distinguish the varied cognitive, social, and emotional stages that children pass through on their way to adulthood. While the pace and timing of these transitions vary, there are broad patterns that are increasingly be recognized by researchers and educators. (See, for example, the recent Carnegie report "Great Transitions," which makes the creation of developmentally appropriate schools one of its primary recommendations.) Programs to prevent adolescent pregnancy need to be similarly attuned to the varied developmental needs of children as they move through the elementary grades into middle school or junior high and then through senior high school.

8 - Recognize that for many teens sexual risk-taking is one of several related forms of risk-taking, such as substance use and delinquency.

Numerous studies have found that early risk-taking, such as smoking cigarettes, using alcohol, using illicit drugs, and varied forms of delinquency are associated with an elevated likelihood of adolescent pregnancy (see Moore, Miller et al., 1995, for a recent review). Moreover, reviews across domains indicate that these varied forms of adolescent problem behaviors share common antecedents. For example, early school problems, poverty, and dysfunctional families increase the risk of substance abuse and behavior problems, as well as early sexual activity and pregnancy (Mendel, 1995). Such findings strongly suggest that early interventions that reduce the risk of one type of problem behavior will reduce the risk of other problem behaviors as well. Indeed, results from the Perry Pre-School program indicate just such effects: children in the experimental group who were exposed to a high quality pre-school intervention were less likely to become teen parents and also were less likely to engage in delinquent and criminal behavior (Weikert, 1989).

9 - Build programs that recognize the role that non-voluntary sex plays in the initiation of sexual activity, pregnancy and parenthood.

In the last several years, there has been an increasing recognition that sexual initiation in early adolescence is largely non-voluntary. Indeed, among girls having sex at age 15 or younger, 60 percent report that their first intercourse was non-voluntary (Moore, Nord and Peterson, 1989; Alan Guttmacher Institute, 1994). Even in middle and later adolescence (and even among adults), non-voluntary sex is a problem (Michael et al., 1994).

As noted above, not many prevention programs have been documented to have strong impacts. This is particularly true with regard to non-voluntary sex. When, to whom, and how to target efforts to prevent coercive sex is not currently known (though see Ounce of Prevention Fund, 1988 for suggestions). Sex education courses for children and younger adolescents that provide sensitive coverage of the issue of sexual abuse may provide an opportunity for children to learn resistance skills and/or to report that they have been abused. One reason to begin sex education at an early age, indeed, is to empower children to avoid unwanted personal attention and to help children realize that they can speak to an adult and obtain help.

Obviously, coercive sex among pre-adolescents and young adolescents is not going to be resolved by sex education given in high school. High school students should nevertheless discuss this issue because non-voluntary sex is a problem for many high school age youth. Also, such classes may provide victims an opportunity to identify and report their own victimization and seek help. Moreover, many of these students will in the next decade be the parents of young children who are susceptible to abuse, and they need to be alerted to the possibility.

Ways to reach adult men to prevent the sexual exploitation of children and young adolescents are beyond the scope of this paper. In particular, ways to reach extremely disturbed individuals are out of the range of the organized prevention programs discussed here. However, anecdotal evidence indicates that some males who would not be clinically defined as emotionally disturbed or psychologically ill sometimes view forced sex as legitimate, as masculine or as attractive behavior. It is possible that discussions in sex education classes of how devastating abuse can be for the victim may deter some young men who hold such attitudes from forcing sex on females. Alternatively, realization that coercive sex is illegal and punishable may deter some young men from pressing or forcing sexual intercourse on females. In addition, discussions of movies and songs that legitimize violence against women may help males think through the implications of forcing sex on a partner who is not willing. Inevitably, however, interventions aimed at preventing sexual abuse of adolescents and children will have to go beyond discussions and counseling to the challenge of helping victims to press charges.

In summary, the topic of sexual abuse should be introduced in an age appropriate manner in sex education classes for children and for adolescents. Responsible media coverage to reach adults and the prosecution of perpetrators are also necessary.

10 - Involve males and recognize that many male partners of adolescent females are not themselves teenagers.

Only during the past several years have research and policy discussions come to focus on males. Even now, however, most of the focus is on males who are already fathers, recognizing that perhaps two-thirds of the babies born to teenagers are fathered by men who are twenty or older (Landry & Forrest, 1995) and that a fifth of the fathers are six or more years older than the teen mother (Alan Guttmacher Institute, 1994; Landry and Forrest, 1995). A second focus on males has begun to develop in recognition of the role of non-voluntary sex in adolescent pregnancy, as discussed above. An additional focus is needed to address the developmental and informational needs of adolescent males and young adult males who are not already fathers and who are not coercive.

Programs can deal with males either directly or indirectly. Indirect approaches would involve working with girls to deal with ignorance, pressure or aggression from male partners. Alternatively, programs can begin working directly with boys directly at a young age, helping boys to succeed in school, to develop sources of pride and accomplishment other than sexual conquest, and to help adolescent males appreciate the implications of pregnancy for young women and for children. Programs should also emphasize the responsibilities of fatherhood, discussing both the financial and the emotional support needed by children and mothers. Enforcing child support among males who are fathers should not be the only direction for public policy toward males; youth development approaches represent a positive, preventive approach that can help males adopt more positive ways of achieving manhood than early fatherhood or fathering a child by an adolescent female.

11-Conduct process evaluations for all organized programs and, where warranted, conduct rigorous impact evaluations.

There are, broadly speaking, two kinds of evaluations -- process evaluations and impact evaluations. Process evaluations help program designers know whether intended services are being delivered to whom and in what amounts. Every program should have some kind of management information system (MIS) that records basic demographic information and basic program data about attendance over time. More sophisticated MIS systems will record information about how much a person participates in a given service or activity, about referrals and services received elsewhere, and about services that were not available for the eligible person. A process evaluation cannot provide information on whether a program has had impacts on the life outcomes of eligible participants, but it provides crucial information about whether any program really exists and what the program consists of. A process evaluation can identify factors that undermine the effectiveness of a program. In addition, a process evaluation provides crucial input information that can be used in an impact evaluation to understand why a program did or did not have an impact.

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An impact evaluation represents a major investment but it provides crucial information. As we have discussed in detail elsewhere (Moore, Sugland et al, 1995; Card, 1988), the only evaluation design that can provide information about the effect of a given program with any certainty is an experimental evaluation, specifically, an experiment in which eligible entities are randomly assigned to be in the experimental group which gets the treatment or the control group which does not get the treatment. Random assignment may focus on individuals, couples or families. If they are carefully implemented, quasi-experimental designs may randomly assign classrooms, agencies, sites, or schools; but usually quasi-experimental designs do not provide the certainty with regard to impacts that is available from a strictly experimental design. One of the main reasons we know so little about what approaches are effective ways to prevent adolescent pregnancy is the lack of rigorous experimental studies.

While virtually every program should incorporate some kind of process evaluation, not every program needs or merits an impact evaluation. Such a major and expensive evaluation strategy is appropriate only for the most promising approaches, where there is a carefully designed and well-developed program, where the process evaluation indicates that services are being delivered, and where random assignment is feasible.

BEST BETS

Having discussed a set of somewhat broad principles, in this section we seek to be relatively concrete, describing several ideas for interventions that build on the available knowledge base. These represent some of our "best bets" for program development. It is not an exhaustive list, and others will undoubtedly have creative additions.

Early Childhood Interventions

As noted in the discussion of our first principle, numerous studies indicate that the risk factors for adolescent pregnancy develop years prior to puberty, during childhood (Moore, Miller et al., 1995). Early school failure and early behavior problems are consistent predictors of pregnancy risk. Programs that enhance children's school readiness and assist with the transition into formal schooling have the potential to improve school success and behavior. Programs that involve parents or provide parent education have the potential to reduce family dysfunction, another of the key predictors of adolescent pregnancy. In addition, if such programs are provided to low-income families, they have the potential to increase parents' earnings and to provide greater opportunity to low-income children, thus addressing poverty, another key predictor of adolescent pregnancy, but one which is very difficult and expensive to alter. Another reason to highlight early childhood education is that one of the few programs to have documented long-term impacts on the incidence of adolescent pregnancy is the Perry Pre-School Program, a high-quality early intervention that served pre-school children and their parents (Weikert, 1989). Thus, the available evidence points to strengthening early childhood education and child care as possible ways to reduce adolescent pregnancy a decade or more later.

Early childhood education and child care are frequently recommended as services that can enable parents to become employed while enhancing the development of young children. They are not generally viewed, however, as high priority strategies for preventing adolescent pregnancy, and it is unlikely that funders will support the creation of a new early childhood program to investigate whether it eventually affects sexual and fertility behavior. In addition, there isn't time to wait a decade to see whether impacts on fertility occur.

Rather than funding a new intervention, we recommend identifying one or more ongoing or recently completed early childhood interventions. Programs must be high quality; they must have an experimental design; they must involve a thousand or more children (to permit analyses of sub-groups such as gender sub-groups); and they must have high retention rates and complete tracking data to support long-term follow-up. Funds would be needed to support long-term follow-up of families, data collection, and analysis. Programs that served pre-schoolers in the mid-1980s or the early 1980s could yield impact information rather soon regarding impacts on adolescent outcomes such as sexual activity and parenthood.

Early Adolescent Interventions

Our third principle recommends that initiatives for at-risk youth begin prior to puberty. However, at present, few such efforts have been implemented. Indeed, an important developmental period that is often overlooked are the years from approximately ten through fourteen (Carnegie Council on Adolescent Development, 1995). Many opportunities exist for promoting the development of children as they move into puberty and adolescence. In particular, children who are having difficulty managing their school work and/or their behavior in school can be identified for youth development activities, such as tutoring, mentoring, counseling, summer programs, Scouts and/or a sports team. Efforts to engage and educate parents of young at-risk adolescents seem particularly important, and can involve parent education, counseling, parent support groups, and regular meetings between school staff and parents. Following the lead of Teen Outreach, programs might also consider small group approaches that involve adolescents in volunteer service activities. Often overlooked are programs embedded within church settings, yet such programs are likely to have the trust of parents and to provide culturally and morally acceptable messages.

The literature does not provide specific advice regarding effective interventions during middle childhood that will reduce the risk of adolescent pregnancy. The first task seems to be to extend the evaluation studies being conducted among existing generic youth development programs focussed on this age group and examine whether the programs have impacts on teens' sexual and fertility behavior either overall or among specific sub-groups, such as males or females. Next, if impacts are found, it is important to identify those components of programs that are associated with a reduction of risk, and to experiment with augmentations such as sex and family life education, that might enhance the impact of a youth development approach.

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Programs that focus on a sub-set of youth face difficult issues in identifying the population to be served and in assuring sufficient involvement of youth over a lengthy period of time. High absenteeism, failing grades and behavior problems all represent markers of students who could benefit from intensive intervention. It is virtually axiomatic that minimal inputs will have minimal impacts. Yet resources are lacking to provide comprehensive services to all youth who have a single risk factor. Moreover, participation in voluntary programs may be least consistent among those youth who are most in need. As posited in our second principle, a combination of positive and negative sanctions may increase participation and behavior change.

Ways to identify youth who can benefit from such approaches, to engage such youth, and to keep such youth involved over time will require creative grass roots strategies. Most of all, it will require committed personnel, such as many of the youth recruited to the Americorps program. At this time, however, the clear initial task is to rigorously examine whether such youth development approaches implemented during the middle childhood years can significantly reduce the incidence of pregnancy during adolescence.

"Working Class" High School Youth

Most intervention programs target highly at-risk youth or families, such as those who receive welfare, high school dropouts, or youth who are seen as coming from "underclass" families. Much less attention is focussed on the youth who have somewhat higher social and economic prospects, yet who are not college-bound. Nevertheless, working class youth are going to face substantial obstacles toward establishing stable careers and economically viable families. Economic and occupational success have become substantially more difficult for youth who terminate their education with a high school degree (Farley, 1995). Numerous studies document that very few of the females who become teen mothers and the males who father children to teen females obtain a college education (Brien & Willis, 1995; Moore et al., 1995; Hotz et al., 1995).

Although policy efforts are generally focussed on delaying high school-age childbearing, the hard fact is that in a modern industrial economy, childbearing in the late teens and early twenties is also too early. Thus, even among women aged 20-24, 61 percent of all pregnancies are described by the woman as unintended at conception (Forrest, 1994). Among nineteen-year-olds, 63 percent of all births occur outside of marriage, as do 42 percent of births among women aged 20-24. How can older teens completing high school and recent high school graduates be assisted to delay pregnancy, particularly unintended pregnancy?

In keeping with our fifth principle, approaches should be developed that recognize the intermediate level of need among most youth who are high school graduates. Extremely expensive and comprehensive programs are less generally needed. However, further experimental work is needed to examine the kinds of programs needed by these youth during their high school years. Clear and complete sex education that covers both abstinence and methods of contraception seems essential for youth who do not aspire or expect to attend college,

as the vast majority of these teens will have sex before they turn twenty. The role of the media -- including television, music, video games, movies, and magazines -- in shaping decisions and behavior might be discussed. In particular, as noted above, classes might discuss the role of coercion in sexual relationships and help both males and females learn strategies to avoid having unwanted sexual experiences and ways to enforce the use of contraception to prevent unwanted pregnancies. An experimental study might explore the incremental value of repeated exposure to sex education, to longer versus short coverage, to single gender versus co-educational classes, and to individual counseling as an augmentation to classroom coverage.

Parent Empowerment

Dysfunctional families and families lacking the motivation, support or skills needed to be effective parents are consistent precursors of childhood problems, as well as adolescent sexual risk-taking and early pregnancy (Moore, Miller et al., 1995). Consequently, numerous programs have focussed on ways to enhance parenting. During the past decade, explicitly two generation approaches have expanded (Smith, 1993), as policy makers and program providers have sought to enhance the wellbeing of both parents and children at once. To date, evidence of impacts has been mixed (Zaslow et al., 1995). Nevertheless, the literature establishing the effects of parent characteristics and wellbeing upon the development of children is so consistent and compelling that the response to weak results must be to consider more carefully the types, strength, duration, and involvement of these interventions. How much parent education do participants actually receive? How long are home visits provided? Over what time period are participants actively involved in the program? What follow-up is provided? How central to the concerns of the parents are the needs that are addressed in available programs? Are program providers trusted? Are essential services missing?

Supporting parents and enhancing their skills as parents represents an intrinsically worthwhile activity. Moreover, as implied by our fourth principle, working with families is less controversial then many other approaches. In this time of constrained budgets, it will be necessary, of course, to demonstrate that relatively costly program approaches do in fact enhance parenting and child development. With respect to the goal of reducing adolescent pregnancy, long-term follow-up of such interventions is needed to ascertain whether sexual and fertility impacts occur during adolescence. If impacts are found, researchers should identify the pathways by which impacts are transmitted. Do parents become more actively involved in monitoring the activities of their children? Do they engage in greater communication and education? Do they provide more social, emotional and academic support to their children?

Programs seeking to enhance parent skills and involvement need to focus explicit and significant attention on involving fathers. A number of programs directed at fathers are being developed across the country, but as yet no evaluations have assessed whether such programs have impacts on adolescent sexual and fertility behavior. Many commentators view the dilution of the influence of the biological father on their sons and on their daughters as critical factors in a wide range of adolescent problems. Ways to re-engage fathers require greater attention. Beyond

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the biological father, identifying ways to involve other father figures such as grandfathers, step-fathers, uncles, and mentors need to be developed and evaluated.

Enterprise/Empowerment Approaches at the Community Level

Based on available research (as recommended in our first principle) one of the most compelling hypotheses for the considerably higher rates of adolescent childbearing among disadvantaged groups is the opportunity costs hypothesis. This perspective posits that adolescents who enjoy good educational and economic opportunities delay sex and/or parenthood in order to pursue their opportunities. Correspondingly, adolescents who lack positive future prospects see little reason to abstain from sex or consistently practice contraception to avoid a birth that will have little effect on their futures. This perspective argues that improving the educational and economic prospects of disadvantaged youth will increase their motivation to prevent adolescent pregnancy.

Across the nation, substantial funding is being provided to areas designated as enterprise zones or empowerment communities. If such funding is successful in bringing business into a community, then, if the opportunity costs hypothesis is correct, over time adolescent sexual and fertility behavior should change, as adolescents perceive that delaying sexual involvement and avoiding pregnancy can lead to socioeconomic advancement. As recommended in principle ten, rigorous evaluation of these programs should be considered.

Ongoing evaluation studies can be rather readily expanded to examine such an hypothesis. Over time, adolescent birth rates can be tracked. If survey data are being collected, questions about sexual, contraceptive use and parenthood can be added to the survey. Issues of selectivity, sub-group variation, in-migration to the community, and out-migration from the community require attention within any larger evaluation, but if micro data are collected for the larger evaluation, these data can be used to adjust findings for studies of adolescent fertility.

Sex Education and Interpersonal Skills

Reviews of the effects of sex education (e.g., Kirby et al., 1994) indicate that, while sex education does not hasten sexual initiation among teens, neither does it have very large or sustained effects in delaying sex or encouraging contraceptive use among those adolescents who are sexually active. However, programs like Postponing Sexual Involvement and Reducing the Risk have gone beyond providing information in a lecture format to teach resistance skills, to use discussion methods, and to bring in older teens as role models. These augmented sex education approaches have had greater success both in delaying sex and in increasing contraceptive use. However, as yet, no programs have had been found to have really substantial and sustained impacts across sub-groups. The programs that have been evaluated, however, have been rather short-term interventions. The question for program developers is whether the approaches used in these classes, adapted for older and younger students, and offered repeatedly for pre-adolescents, adolescents and teens might have a cumulative impact that really makes a difference.

In sum, although few rigorous intervention evaluations are currently available that point out a clear direction for reducing adolescent fertility, data available from basic research studies and existing evaluations do provide guidance for future initiatives. Working within families, schools, communities, and agencies such as welfare offices, thoughtful and sustained initiatives can be developed that can help reduce the very high rate of adolescent childbearing in the United States.

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